CLAIMS:

1. A non-invasive health monitor device comprising:

a processor;

a processor readable storage medium;

code recorded in the processor readable storage medium to create a first array of data based on discretely recorded time events in which each element of the first array is representative of a time when an event took place;

code recorded in the processor readable storage medium to create a second array of data in which each element of the second array is an interval representative of the difference between successive elements of the first array;

code recorded in the processor readable storage medium to create a third array of data in which each element of the third array is a delta interval representative of the difference between successive elements of the second array;

code recorded in the processor readable storage medium to perform a fast fourier transform (FFT) to obtain power spectrum data representative of the third array; and

code recorded in the processor readable storage medium to integrate the power spectrum data over frequency ranges of interest to obtain discrete power values for said frequency ranges of interest.

2. A non-invasive health monitor device to assist in cardiac evaluation comprising:

a processor;

a processor readable storage medium;

code recorded in the processor readable storage medium to create a first array of heart vibrations based on discretely recorded heartbeats in which each element of the first array is representative of a time when a heartbeat took place;

code recorded in the processor readable storage medium to create a heart period array in which each element is a heart period interval representative of the difference between successive heartbeats of the first array of heart vibrations;

code recorded in the processor readable storage medium to create a delta heart period interval array in which each element is a delta heart period interval representative of the difference between successive elements of the heart period interval array;

code recorded in the processor readable storage medium to perform a fast fourier transform (FFT) to obtain power spectrum data representative of the delta heart period interval array; and

code recorded in the processor readable storage medium to integrate the power spectrum data over one or more frequency ranges of interest to obtain discrete power values for said one or more frequency ranges of interest.

3. The non-invasive health monitor device of claim 2 wherein the frequency ranges of interest include a low frequency (LF) range, a high frequency (HF) range, and a very high frequency (VHF) range.

4. The non-invasive health monitor device of claim 3 further comprising:

code recorded in the processor readable storage medium to calculate a total power, TP, value that is the sum of the LF, HF, and VHF power values.

5. The non-invasive health monitor device of claim 3 further comprising:

code recorded in the processor readable storage medium to calculate a power ratio value that is equal to LF / HF.

6. The non-invasive health monitor device of claim 4 further comprising:

code recorded in the processor readable storage medium to calculate a normalized LF power value that is equal to LF / TP.

7. The non-invasive health monitor device of claim 4 further comprising:

code recorded in the processor readable storage medium to calculate a normalized HF power value that is equal to HF / TP.

8. The non-invasive health monitor device of claim 4 further comprising:

code recorded in the processor readable storage medium to calculate a normalized VHF power value that is equal to VHF / TP.

9. The non-invasive health monitor device of claim 3 wherein the LF range is approximately .04 to.15 Hz.

10. The non-invasive health monitor device of claim 3 wherein the HF range is approximately .15 to 0.4 Hz.

11. The non-invasive health monitor device of claim 3 wherein the VHF range is

approximately 0.4 to 1.0 Hz.

12. A non-invasive health monitor device to assist in respiration evaluation comprising:

a processor;

a processor readable storage medium;

code recorded in the processor readable storage medium to create a first array of respiration events based on discretely recorded body motions in which each element of the first array is representative of a time when a respiration event took place;

code recorded in the processor readable storage medium to create a respiration period interval array in which each element is a respiration period interval representative of the difference between successive elements of the first array of respiration events;

code recorded in the processor readable storage medium to create a delta respiration period interval array in which each element is a delta respiration period interval representative of the difference between successive elements of the respiration period interval array;

code recorded in the processor readable storage medium to perform a fast fourier transform (FFT) to obtain power spectrum data representative of the delta respiration period interval array; and

code recorded in the processor readable storage medium to integrate the power spectrum data over a defined range of interest to obtain a discrete power value.

13. A non-invasive health monitor device to assist in cardiac evaluation comprising:

a processor;

a processor readable storage medium;

code recorded in the processor readable storage medium to create an array of first heart vibrations based on discretely recorded heartbeats in which each element of the first array is representative of a time when a first heart vibration of a heartbeat took place;

code recorded in the processor readable storage medium to create an array of second heart vibrations having an element to element association with the array of first heart vibration, said array of second heart vibrations representative of a time when a second heart vibration of a heartbeat took place;

code recorded in the processor readable storage medium to create a ventricular systole interval array in which each element is an interval representative of the time difference between the second and first heart vibrations of each heartbeat in the second and first heart vibration arrays;

code recorded in the processor readable storage medium to create a delta ventricular systole interval array in which each element is a delta ventricular systole interval representative of the difference between successive elements of the ventricular systole interval array;

code recorded in the processor readable storage medium to perform a fast fourier transform (FFT) to obtain power spectrum data representative of the delta ventricular systole interval array; and

code recorded in the processor readable storage medium to integrate the power spectrum data over one or more frequency ranges of interest to obtain discrete power values for said one or more frequency ranges of interest.

14. The non-invasive health monitor device of claim 13 wherein the power spectrum frequency ranges of interest include a low frequency (LF) range, a high frequency (HF) range, and a very high frequency (VHF) range.

15. The non-invasive health monitor device of claim 14 further comprising:

code recorded in the processor readable storage medium to calculate a total power, TP, value that is the sum of the LF, HF, and VHF power values.

16. The non-invasive health monitor device of claim 16 further comprising:

code recorded in the processor readable storage medium to calculate a power ratio value that is equal to LF / HF.

17. The non-invasive health monitor device of claim 15 further comprising:

code recorded in the processor readable storage medium to calculate a normalized LF power value that is equal to LF / TP.

18. The non-invasive health monitor device of claim 15 further comprising:

code recorded in the processor readable storage medium to calculate a normalized HF power value that is equal to HF / TP.

19. The non-invasive health monitor device of claim 15 further comprising:

code recorded in the processor readable storage medium to calculate a normalized VHF power value that is equal to VHF / TP.

20. The non-invasive health monitor device of claim 14 wherein the LF range is approximately 0 to 0.15 Hz.

21. The non-invasive health monitor device of claim 14 wherein the HF range is approximately 0.15 to 0.4 Hz.

22. The non-invasive health monitor device of claim 14 wherein the VHF range is approximately 0.4 to 1.0 Hz.

23. A non-invasive health monitor device comprising:

a processor;

a processor readable storage medium;

code recorded in the processor readable storage medium to create a first array of data based on discretely recorded time events in which each element of the first array is representative of a time when an event took place;

code recorded in the processor readable storage medium to create a second array of data in which each element of the second array is an interval representative of the difference between successive elements of the first array;

code recorded in the processor readable storage medium to create a third array of data in which each element of the third array is a delta interval representative of the difference between non-successive elements of the second array;

code recorded in the processor readable storage medium to perform a fast fourier transform (FFT) to obtain power spectrum data representative of the third array; and

code recorded in the processor readable storage medium to integrate the power spectrum data over frequency ranges of interest to obtain discrete power values for said frequency ranges of interest.

24. A method of monitoring health non-invasively comprising:

creating a first array of data based on discretely recorded time events in which each element of the first array is representative of a time when an event took place;

creating a second array of data in which each element of the second array is an interval representative of the difference between successive elements of the first array;

creating a third array of data in which each element of the third array is a delta interval representative of the difference between successive elements of the second array;

performing a fast fourier transform (FFT) on the third array to obtain power spectrum data representative of the third array; and

integrating the power spectrum data over frequency ranges of interest to obtain discrete power values for said frequency ranges of interest.

25. A method of monitoring health non-invasively to assist in cardiac evaluation comprising:

creating a first array of heart vibrations based on discretely recorded heartbeats in which each element of the first array is representative of a time when a heartbeat took place;

creating a heart period array in which each element is a heart period interval representative of the difference between successive elements of the first array of heart vibrations;

creating a delta heart period interval array in which each element is a delta heart

period interval representative of the difference between successive elements of the heart period interval array;

performing a fast fourier transform (FFT) on the delta heart period interval array to obtain power spectrum data representative of the delta heart period interval array; and

integrating the power spectrum data over one or more frequency ranges of interest to obtain discrete power values for said one or more frequency ranges of interest.

26. The method of claim 25 wherein the frequency ranges of interest include a low frequency (LF) range, a high frequency (HF) range, and a very high frequency (VHF) range.

27. The method of claim 26 further comprising:

calculating a total power, TP, value that is the sum of the LF, HF, and VHF power values.

28. The method of claim 26 further comprising:

calculating a power ratio value that is equal to LF / HF.

29. The method of claim 27 further comprising:

calculating a normalized LF power value that is equal to LF / TP.

30. The method of claim 27 further comprising:

calculating a normalized HF power value that is equal to HF / TP.

31. The method of claim 27 further comprising:

calculating a normalized VHF power value that is equal to VHF / TP.

32. The method claim 26 wherein the LF range is approximately .04 to.15 Hz.

33. The method of claim 26 wherein the HF range is approximately .15 to 0.4 Hz.

34. The method of claim 26 wherein the VHF range is approximately 0.4 to 1.0 Hz.

35. A method of monitoring health non-invasively to assist in respiration evaluation comprising:

creating a first array of respiration events based on discretely recorded body motions in which each element of the first array is representative of a time when a respiration event took place;

creating a respiration period interval array in which each element is a respiration period interval representative of the difference between successive elements of the first array of respiration events;

creating a delta respiration period interval array in which each element is a delta respiration period interval representative of the difference between successive elements of the respiration period interval array;

performing a fast fourier transform (FFT) on the delta respiration period interval array to obtain power spectrum data representative of the delta respiration period interval array; and

integrating the power spectrum data over a low frequency (LF) range of interest to obtain a discrete power value.

36. The method of claim 35 wherein the LF range is approximately .04 to 0.3 Hz.

37. A method of monitoring health non-invasively to assist in cardiac evaluation comprising:

creating a first array of heart vibrations based on discretely recorded heartbeats in which each element of the first array is representative of a time when a ventricular heart vibration of a heartbeat took place;

creating a second array of heart vibrations having an element to element association with the first array of heart vibrations, said second array of heart vibrations representative of a time when a systolic heart vibration of a heartbeat took place;

creating a ventricular systole interval array in which each element is an interval representative of the time difference between the second and first heart vibrations of each heartbeat in the second and first arrays;

creating a delta ventricular systole interval array in which each element is a delta ventricular systole interval representative of the difference between successive elements of the ventricular systole interval array;

performing a fast fourier transform (FFT) on the delta ventricular systole interval array to obtain power spectrum data representative of the delta ventricular systole interval array; and

integrating the power spectrum data over one or more frequency ranges of interest to obtain discrete power values for said one or more frequency ranges of interest.

38. The method of claim 37 wherein the frequency ranges of interest include a low frequency (LF) range, a high frequency (HF) range, and a very high frequency (VHF) range.

39. The method of claim 38 further comprising:

calculating a total power, TP, value that is the sum of the LF, HF, and VHF power values.

40. The method of claim 38 further comprising:

calculating a power ratio value that is equal to LF / HF.

41. The method of claim 39 further comprising:

calculating a normalized LF power value that is equal to LF / TP.

42. The method of claim 39 further comprising:

calculating a normalized HF power value that is equal to HF / TP.

43. The method of claim 39 further comprising:

calculating a normalized VHF power value that is equal to VHF / TP.

44. The method of claim 38 wherein the LF range is approximately .04 to.15 Hz.

45. The method of claim 38 wherein the HF range is approximately .15 to 0.4 Hz.

46. The method of claim 38 wherein the VHF range is approximately 0.4 to 1.0 Hz.

47. A method of monitoring health non-invasively comprising:

creating a first array of data based on discretely recorded time events in which each element of the first array is representative of a time when an event took place;

creating a second array of data in which each element of the second array is an interval representative of the difference between successive elements of the first array;

creating a third array of data in which each element of the third array is a delta interval representative of the difference between non-successive elements of the second array;

performing a fast fourier transform (FFT) on the third array of data to obtain power spectrum data representative of the third array of data; and

integrating the power spectrum data over frequency ranges of interest to obtain discrete power values for said frequency ranges of interest.